Sabbatical Proposal
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Researching correspondence between J.O. Veatch & the Bureau of Soils: Investigation of the soil profile method as a paradigm shift.

Abstract

This sabbatical leave will be used to investigate correspondence between soil survey leaders (in particular, J. O. Veatch) and the Bureau of Soils in the National Archives, which will be the basis of an article and contribute to a book on Veatch. Veatch was the soil survey leader for the State of Michigan, overseeing all survey work from 1921-1950. During this period there was a fundamental shift in our perception of soils. This work will, from the perspective of the soil survey leaders, provide insight into this revolutionary shift in Michigan and the United States not available from other sources.

In addition, this sabbatical leave will give me the singular opportunity to work alongside faculty in the Department of Environmental Science & Technology at the University of Maryland which has extended an offer to teach an upper level undergraduate soils class and either a Graduate Seminar or a Capstone Project.

Introduction:

Jethro Otto (J.O.) Veatch (1883-1974) was one of the most prominent soil scientists of his era and one whose contributions have largely been overlooked in the literature. Veatch's influence in soil investigations is such that I have yet to find a publication concerned with any aspect of soil survey work in the State of Michigan during the period from 1920-1950 that he was not directly involved in. Veatch was in the vanguard of soil investigators whose use of the soil profile method heralded a revolutionary shift which would lead to the development of a more mature soil science.

The profile method recognized soils as natural bodies (i.e. that they had a distinct "anatomy") which could be expressed by the presence, absence, and development of horizontal layers called horizons. Prior to this the top 6 $^{2/3}$ inches (essentially the plow depth) was designated as "soil" and below this was "subsoil". Soil types were described, classified, and sampled for analysis on the basis of soil and subsoil which had little to no

alignment with the natural arrangement of horizons. One of the reasons that the profile method was revolutionary was that, if adopted, all previous work (close to 20 years worth) would have to be discarded.

Veatch was a remarkable man who was at the forefront of the conservation movement in Michigan and one who integrated the latest discoveries in ecology, plant ecology, chemistry, forestry, geology, geography, and soil science into his work. Above all else Veatch was a practiced and penetrating observer of the landscape, a geographer with a unique ability to synthesize soils information into maps which are still, 100 years later, highly regarded for their accuracy and insight.

J.O. Veatch left behind a rich body of published material which allows one to follow the development of the profile method. In addition, his work documents the early years of soil science, and anticipates future work.

Background on previous work (2008-2011):

All previous research was conducted during spring and summer breaks using both personal and professional development funds. Internet sources were scoured to obtain copies of rare publications and the Interlibrary Loan services of the Shouldice Library were extensively used. Contacts were made with antiquarian book dealers in Lansing, Ann Arbor, Detroit, and Denver looking for publications. National Forests in Arizona, New Mexico, and Florida were contacted for copies of unpublished materials.

Veatch's entire professional output, 59 county soil surveys, 5 books, 82 published articles, several unpublished soil surveys, and a number of surveys and maps that Veatch was invited to contribute to have been collected. These have been supplemented by hundreds of original soil survey maps, as well as dozens of scanned maps. Materials have been collected from the MSU Map and Main libraries, the MSU Archives & Historical Collections, the Bentley Historical Library, the State of Michigan Library, and the State of Michigan Archives. In the summer of 2010 I was able to (with the generous support of the Lake Superior State University Issues and Intellect Committee and the Kenneth J. Shouldice Library) obtain Veatch's 1926 field book with his notes on soil investigations in Tuscola, Chippewa, and Menominee counties.

Using this information I have put together the following products:

Soil Survey to Soil Science: The Work of J. O. Veatch in Michigan, an exhibit of maps and accompanying descriptions in the Shouldice Library in 2011,

Jethro Otto Veatch – Michigan Soil Surveyor, an article for the Soil Classifiers Association of Michigan Spring 2011 Newsletter,

Chippewa County and the Land Economic Survey, a presentation for Annual Meeting of the Chippewa County Historical Society on April 6, 2011

Early Michigan Conservation Activities, an Earth day presentation at LSSU on April 20, 2011

J.O. Veatch: Soil Profile Studies in Michigan, (in preparation) a paper and presentation for the Michigan Academy of Arts & Letters spring 2012

Next steps:

As Thomas Kuhn first proposed in *The Structure of Scientific Revolutions*, a paradigm shift in any field is accompanied by much more than a quiescent acceptance of a "better" theory. In the early stages the new theory experiences a fierce resistance or backlash, often led by senior members of that scientific community. The resistance to the profile method is well represented in the literature, however, the words of the proponents are not. The introduction of the profile method in the United States is linked to a well defined event in 1914 experienced by its most tenacious supporter, Dr. Curtis F. Marbut, the man in charge of the National Soil Survey. Less well reported is the nature and trajectory of the transformational process that this experience launched. This work will address that.

An examination of the "Soils" chapters of the 267 soil surveys in the *Field Operations of the Bureau of Soils* from 1915-1919 has allowed the identification of key phrases unambiguously associated with the profile method. These were then used to identify soil survey leaders, in addition to Veatch, who supported, used, and promoted the profile method.

Soil survey leaders sent regular reports to the Bureau of Soils Washington office and I am proposing to look through these correspondences for statements indicating the mindset of the soil profile supporters.

Veatch's correspondences should provide a more personal perspective as Veatch was a student of Marbut's at the University of Missouri. Veatch worked over winter break with Marbut in 1901 on mapping the Missouri lowlands and the 1904 yearbook has the statement "A fossil. Butt of Marbut's jokes." under Otto Veatch's photograph. In 1927,

15 years after he stopped referring to himself as Otto and went by J.O., Marbut still refers to him as Otto in his opening address during the First International Congress of Soil Science.

Outcome of Project:

I plan to use this sabbatical to gather background information from the National Archives. All soil survey leaders, including Veatch in Michigan were in frequent correspondence with the Washington office and I expect this correspondence will shed light on:

Specific to Veatch

- His implementation of the profile method
- More details of Veatch's relationship to Marbut
- Details of Veatch's work on Special Assignment with the Bureau (1918-1919) working single-handedly on forest-soil studies in several states.
- the relationship between Veatch and Marbut's successor (& Veatch's student) Charles E. Kellogg
- Correspondence between Merris M. McCool (Soil Department Head MSU; 1914-1930) and Marbut outlining cooperative agreement between Bureau & MSU. (McCool was also a student of Marbut).

From the perspective of other soil survey leaders:

- the implementation of the profile method
- The level of support for the profile method.
- Challenges/frustrations/obstacles in confronting the Bureau orthodoxy with the profile method

Ultimately, the outcome of the sabbatical will be the collection of the above information and:

One article (with a working title of *The soil survey and its contributions to a scientific revolution)* for submission to the Soil Science Society of America Journal in draft form.

Chapters 4-8 of *J.O. Veatch: The Man Who Mapped Michigan* in a first draft form. (See Attached draft outline)

Timeline:

September 1 – November 30 2012 Location: Sault Sainte Marie, MI

- Identification of specific soil surveys and soil surveyors to investigate. Determination of specific locations of material in the Archives. Some of these record groups have over 300 linear feet of material: it will take time and frequent communication with archivists to find locations.
- Course preparation.
- Writing article

December 1 – May 31 (2012-2013) Location: College Park, MD

- Archive work. Reading, following emergent threads through records, photocopying.
- Teaching at University of Maryland.
- Writing article and book chapters

June 1 – August 20 2013 Location: Sault Sainte Marie, MI

- Compile data
- Writing article and book chapters

Over the past three years I have been able to conduct this research using professional development funds for spring break and summer trips to the various libraries and archives. In order to complete this work I need access to information available only at the National Archives. I am asking for a full year sabbatical to accomplish this.

As mentioned in the abstract this is a singular opportunity. My work period is in alignment with a sabbatical leave at U of MD which gives me the chance to teach there. (see attached letter of conformation) After 25 years at LSSU being the "only game in town" as far as soil science goes, I look forward to the prospect of working in a department with more soil scientists than there are faculty in the School of Biological Sciences!

Thank you for your consideration.

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